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Images in Cardiology

Managing distorted ABSORB Scaffold in left main during anomalous LMCA stenting

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ABSTRACT

The everolimus-eluting biovascular scaffold (BVS) does not contain any metal, therefore struts are not evident angiographically. Two adjacent platinum radio-opaque markers at each end facilitate precise location of stent ends. Here we report one case of anomalous left main stenting using BVS. The BVS got accidentally distorted in left main during the procedure, which was not visible on angiography but detected on OCT.

A 52-year-old gentleman a case of hypertension and recent anterior wall myocardial infarction thrombolysed with streptokinase was admitted to our hospital for post-infarct angina. The coronary angiogram showed an anomalous LMCA arising from right coronary sinus. After getting origin from right coronary sinus, LMCA had long course with significant discrete stenosis in the mid part of it (Fig. 1A). Myocardial viability revealed partial thickness infarct with significant residual viability in LAD territory. During intervention anomalous LMCA was cannulated with 6F multipurpose guiding catheter (Cordis, Johnson & Johnson). Lesion was crossed with 0.014 BMW (Balance Middle Weight, Guidant Corporation) and parked distally in the left anterior descending artery. Another 0.014 BMW guide wire was kept in left circumflex artery. The lesion was predilated with 3.0 × 15 mm sapphire balloon (Orbusneich Medical Technologies). Then a 3.5 × 18 mm Absorb biovascular Scaffold (BVS) (everolimus eluting, Abbott vascular) was passed over the guide wire and deployed successfully at 14 atm pressure. Post-stenting cine angiography result was good (Fig. 1B). Then, OCT was done which revealed well apposed scaffold in mid LMCA but not very well apposition (underexpansion) of scaffold in proximal part (Fig. 1C). After OCT the guide wire in LCX was removed. A 4.0 × 12 mm non-compliant NC-TREK balloon (Abbott

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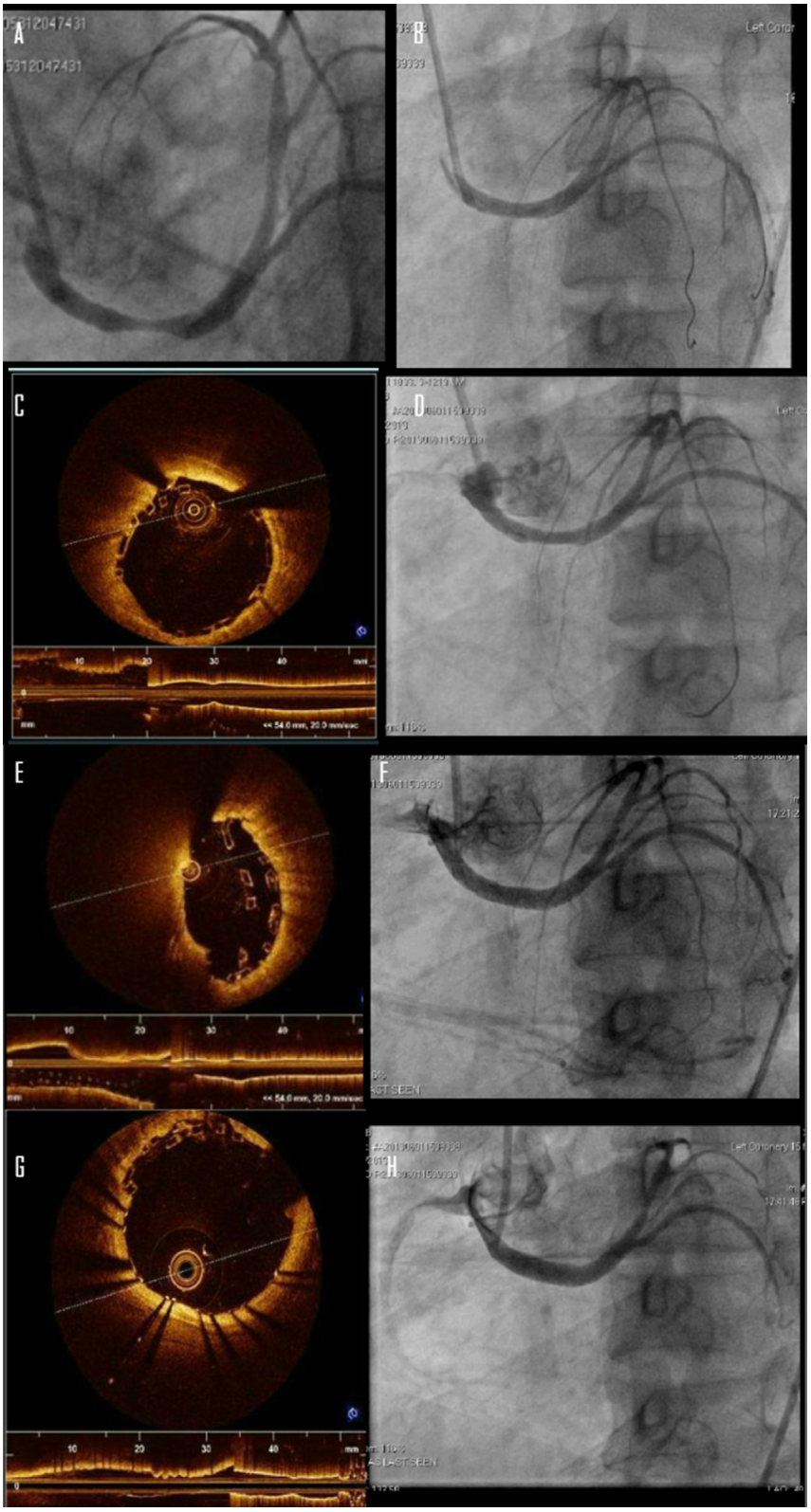

Fig. 1 – (A) – A left coronary angiography in left anterior oblique projection shows an anomalous left main coronary artery (LMCA). There is a discrete lesion in mid part of LMCA. (B) – A left coronary angiography shows results after BVS (biovascular scaffold) deployment. As BVS does not contain any metal, struts are not evident angiographically. (C) – Optical coherence tomography (OCT) after BVS implantation, showing malapposition of stent struts. (D) – Coronary angiography after post-dilatation with balloon showing TIMI III flow. (E) – OCT showing distorted BVS. This happened because the stent implantation was done over the LCX guide wire, while post-stenting balloon dilatation was done over the guide wire parked in LAD. (F) – A left coronary angiography showing immediate result after DES stenting. (G) – OCT image showing well apposed Xience Prime stent and also Absorb scaffolds apposed to vessel wall. (H) – A left coronary angiography showing final angiographic result.

Vascular) was passed over the other wire for post-stenting balloon dilatation. Balloon passed smoothly on the wire without any resistance. Balloon dilatation done at 10 atm pressure. Angiographic result was satisfactory without any complications TIMI 3 flow was achieved (Fig. 1D). The patient was completely asymptomatic and was hemodynamically stable. Post-stenting OCT was done to see proper apposition of stent and to everybody's surprise it showed distorted Absorb scaffold with struts apposing to only one side of LMCA vessel wall and other side struts were in the middle of lumen (Fig. 1E). We then realized that stent implantation was done over the LCX guide wire, while post-stenting balloon dilatation was done over the guide wire parked in LAD. Because of large artery size the blood flow was not significantly impaired, giving a false perception of good result of stenting with TIMI III flow. As the absorb scaffold is not visible on fluoroscopy, the distortion of scaffold was not visible. The only way to assess position of stent on fluoroscopy is the two platinum markers located at both extremities of the stent. In this case we did stent boost to see these platinum markers more clearly, which revealed that BVS was not displaced longitudinally. Anticipating the consequences of LMCA occlusion, we did not try any further guide wire manipulations. We immediately deployed a 4 × 28 mm Xience Prime (Abbott vascular) stent over the LAD guide wire to sideline the distorted BVS. Post-stenting angiographic result was good (Fig. 1F). To appose the BVS struts firmly to vessel wall post-dilatation was done using 5.0 × 20 mm Viatrac balloon (Abbott vascular) at 6 atm. Post-stenting OCT showed well apposed metallic stent, which has also apposed BVS struts against one side of vessel wall (Fig. 1G). Final angiogram revealed TIMI III flow without any procedural complications (Fig. 1H). Patient was hemodynamically stable throughout the procedure. Patient was discharged in stable condition. Patient came for review one and half month after, he was completely asymptomatic and check angiogram also revealed patent stent. He was doing well till we wrote this article.

Conflicts of interest

All authors have none to declare.